

Reply to Office Action of 05/26/2005  
Amendment Dated: August 16, 2005

Appl. No.: 09/824,844  
Attorney Docket No.: CSCO-007/3484

9 packet containing an identifier for said second system, wherein said request packet  
10 requests information on whether said second system is connected directly to said layer-2  
11 device;

12 determining in said layer-2 device whether said layer-2 device is connected directly  
13 to said second system;

14 generating in said layer-2 device a response packet, wherein said response packet  
15 indicates whether said second system is connected directly to said layer-2 device; and

16 sending from said layer-2 device to said central device said response packet  
17 irrespective of whether said central device is in said route or whether said layer-2 device  
18 is a last device in said route.

1 36. (Currently Amended): The computer readable medium of claim 35, wherein  
2 said generating further comprises:

3 identifying in said layer-2 device a next device, wherein said next device is next to  
4 said layer-2 device in a route from said first system to said second system; and  
5 including data identifying said next device in said response packet.

1 37. (Currently Amended): The computer readable medium of claim 36, wherein  
2 said identifying comprises:

3 examining a table in said layer-2 device to determine a port on which said second  
4 system communicates; and

5 locating a device connecting on said port, wherein said located device comprises  
6 said next device.

1 38. (Original): The computer readable medium of claim 37, wherein said locating  
2 comprises:

3 receiving a neighbor packet from said next device on said port indicating a next  
4 device identifier identifying said next device; and

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5 including said next device identifier in said response packet.

1 39. (Currently Amended): A device for supporting the tracing of a route containing  
2 a sequence of layer-2 devices between a first system and a second system, said device  
3 being comprised in a network based on broadcast medium, said device comprising:  
4 an inbound interface receiving a request packet from a central device, said request  
5 packet containing an identifier for said second system, wherein said request packet  
6 requests information on whether said second system is connected directly to said device;  
7 a next hop block determining whether said device is connected directly to said  
8 second system;  
9 a generate request/response block generating a response packet, wherein said  
10 response packet indicates whether said second system is connected directly to said device;  
11 and  
12 an outbound interface sending said response packet to said central device  
13 irrespective of whether said central device is in said route or whether said device is a last  
14 device in said route.

1 40. (Currently Amended): The layer-2 device of claim 39, further comprising:  
2 a memory storing a first table and a second table, said first table indicating a port  
3 on which each system communicates, said second table indicating a device connecting to  
4 each port; and  
5 a port determination block determining a port on which said second system  
6 communicates,  
7 wherein said next hop block examines said second table to determine said a next  
8 device according to the port determined by said port determination block, wherein said  
9 next device is contained in said sequence of layer-2 devices.

1 41. (Currently Amended): The layer-2 device of claim 40, wherein said next hop

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2 block determines that said second system is directly connected to a first port indicated by  
3 said first table if no device is associated with said first port in said second table.

1 42. (Currently Amended): The layer-2 device of claim 39, further comprising an  
2 user interface receiving said a trace command from a network administrator.

1 43. (Currently Amended): The layer-2 device of claim 42, wherein said layer-2  
2 device is not directly connected to said first system, said layer-2 device further comprising  
3 a control logic to trace a directly connecting device connecting directly to said first system,  
4 wherein said route is traced from said directly connecting device using said inbound  
5 interface, said outbound interface, said next hop block and said generate request/response  
6 block.

1 44. (Currently Amended): The layer-2 device of claim 42, wherein said layer-2  
2 device is not directly connected to said first system, said layer-2 device further comprising  
3 a control logic to trace a directly connecting device connecting directly to said first system  
4 by sending a multicast packet.

1 45. (Currently Amended): The layer-2 device of claim 39, further comprising a  
2 response processor to receive a response packet, wherein said response packet indicates  
3 a next device in said route, wherein said generate request/response block generates another  
4 request packet directed to said next device, wherein said another request packet requests  
5 said next device to indicate whether said second system is connected directly to said next  
6 device.